DOCUMENT RESUME

ED 179 003 EA 011 987

AUTHOR Haddad, Wadi' D.
TITLE Educational Effects of Class Size. World Bank Staff Working Paper No. 280.
INSTITUTION World Bank, Washington, D. C.
PUB DATE Jun 78
NOTE 22p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; *Classroom Environment; *Class Size; Cost Effectiveness; Elementary Secondary Education; *Small Classes; *Students

ABSTRACT

This paper discusses research studies concerning class size and its relation to academic achievement. It also explores whether educational benefits of smaller classes justify the additional cost and whether an optimum class size exists that maximizes educational benefits and cost effectiveness. Following a review of the literature, the paper concludes that an increase in class size does not necessarily lead to a decrease in level of academic achievement. Likewise, a decrease in class size does not guarantee an improvement in the social environment of learning. More important is what the teacher does with the opportunities provided by the size of the class. In the absence of a statistically established basis for an optimum class size, the paper says, decisions regarding this issue are bound by fiscal and curriculum policies and conditions. (Author/LD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED179003

Educational Effects of Class Size

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

World Bank Staff Working Paper No. 280

June 1978

The views and interpretations in this document are those of the authors and should not be attributed to the World Bank, to its affiliated organizations or to any individual acting in their behalf.

Prepared by: Wadi' D. Haddad
Education Department

With documentation assistance of
Francisco Ruiz

Copyright © 1978
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433, U.S.A.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M. Hulton

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 011 987

The views and interpretations in this document are those of the authors and should not be attributed to the World Bank, to its affiliated organizations, or to any individual acting in their behalf.

WORLD BANK

Staff Working Paper No. 280

June 1978

EDUCATIONAL EFFECTS OF CLASS SIZE

This paper relates research results to the questions: Do pupils learn better in small or large classes? Do the educational benefits of smaller classes, if they exist, justify the additional cost? Is there an optimum class size that maximizes educational benefits and cost-effectiveness?

On the basis of the reviewed studies, it cannot be concluded that an increase in class size will necessarily lead to a decrease in the level of academic achievements of pupils. Likewise, a decrease in class size does not guarantee an improvement in the social environment of learning. What seems to be more important is what the teacher does with the opportunities provided by the size of the class. In the absence of a statistically established basis for an optimum class size, decisions regarding this issue are bound by fiscal and curriculum policies and conditions.

Prepared by: Wadi' D. Haddad
Education Department

With documentation assistance of
Francisco Ruiz

Copyright © 1978
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433 U.S.A.

Introduction

1. The relationship between class size and educational outcomes has been a vital issue in the process of educational planning and policy-making, because of its manpower and fiscal implications. It is a significant variable in any formula of optimization of the educational system and reconciliation of educational quality with limited economic resources. Consequently, class size has been a topic of debate in educational circles and a subject of research for decades. The basic questions are:

a) Do pupils learn better in smaller classes than they do in larger classes?

b) Do the educational benefits of smaller classes, if they exist, justify the additional costs?

c) Is there an optimum class-size that maximizes educational benefits and cost-effectiveness?

The Two Sides of the Issue

2. Educational "opinion" is divided over the issue of class size. The major proponents of smaller classes are teachers. In the U.S. where large classes may be considered small compared to some developing countries, teachers strongly favor smaller classes. A study conducted in 1959 by the New York State Teachers Association[1/] showed a positive correlation* between class size and the amount of nervous strain reported by teachers. Hubbard (1963)[2/] reported that teachers considered a class size of 30 to be the "breaking point"

---

* A positive correlation (or relationship) means that an increase in one variable is associated with an increase in the other, while a negative correlation means that a variation in one variable produces an opposite variation in the other.

above which "sheer numbers made them depressed and frustrated." In a poll conducted by the National Education Association in 1963 two-thirds of the respondents indicated that class size should not exceed 24. In another NEA survey[4] in 1969 a majority of teachers (67.3 percent in rural areas, 75.8 percent in urban areas and 72.8 percent in suburban areas) considered large class size a problem. In a more recent poll[5] (1972) teachers listed class size as one of the most "serious" or "crucial" situations they face. In England class size was a major negotiation issue for the National Union of Teachers.[6], [7]

3. Other sectors of the public share with teachers the belief in the effectiveness of smaller classes. A recent Gallup poll of American public attitudes toward education[8] revealed the following responses (in percentages) to the question, "Does class size make a difference?"

	Parents			
Response	No Children in school	Children in Public School	Children in Private School	Professional Educators
Great Deal	75	83	87	85
Little	11	11	7	11
No Difference	8	4	4	1
No Opinion	6	2	2	2

4. The arguments for small classes seem to concentrate more on educational objectives related to the teaching-learning process than on student achievement

per se.[9] It is claimed that in smaller classes (a) the teacher can apply a wider variety of instructional strategies and learning activities, and thus develop a more positive attitude and morale, (b) students can benefit from more individualized learning, engage in more creative activities and divergent thinking processes, and develop better human relations and (c) there are less problems of discipline and classroom management.

5. It is admitted, on the other hand, that small classes are more complex structures that make greater "emotional and intellectual demands"[10] on both teachers and students, in terms of more involvement, alertness, scrutiny, communication, interaction, and personality exposure. In addition, small classes allow for a quicker and more frequent intervention of the teacher in the pupils' activities, and thus may deprive the child from discovering problems and solutions on his own.[11]

6. Considering the class size issue within a socio-psychological framework, four hypothesized classroom needs are identified, namely, discipline, coordination, communication and group resources.[12] When the class is large, pupils presumably try to increase their strife for childish interest and the teacher may become more authoritarian and dogmatic, and the pupils more formal with more apathy and less cohesiveness. The need for coordination is felt more in larger classes which may lead the teacher to adopt a more impersonal role and uniform pattern of behavior. Similarly the need for individual communication increases with larger groups, and may manifest itself in "hidden, rival modes of communicating and behaving in class - active modes such as note-passing, 'grapevines', spitballs,

leadership coups, and juntas or passive modes such as 'anomic', day-dreaming, 'turning off'". Lastly, large classes meet the need for group resources by providing a wider range of student abilities and attitudes.

Effect on Student Achievement

7. A number of studies have been conducted to determine the relationship between class size and student achievement as measured by a variety of standardized tests. Some of them concluded that smaller classes are more effective than larger ones. One of the most comprehensive of these studies was conducted by Furno and Collins[13/] over a five-year period. They found that the third grade pupils in small classes (1-25) scored higher than pupils in large classes on standardized achievement tests in reading and arithmetic. Woodson,[14/] in 1968, conducted also a comprehensive study of class size in 95 school systems in the U.S. The criterion measure he used was the difference between actual test scores and predicted achievement scores based on the established regression between I.Q. and achievement. When districts were grouped into upper and lower third according to class size, it was found that the mean criterion scores were higher for the group of districts in the lower third of class size range for total test scores and subtests in arithmetic and reading. Balow[15/] (1969) reported a gain in reading achievement for grades 1 - 4 with a decrease of class size from 30 to 15. He concluded, however, that "by the middle of the third grade, achievement patterns are pretty well stabilized and smaller class size, by itself, does not have sufficient impact to change these patterns." Ward[16/] (1976) administered achievement (and attitude) instruments to a large

sample of high school biology, chemistry and physics classes in 12 states, and found that the partial correlation between student achievement and class size was significant and in favor of smaller classes.

8. Other studies have revealed the opposite, namely, that large classes lead to increased pupil achievement. Madden[17/] (1968) reported that the achievement of medium ability ninth-grade pupils in mathematics was higher for those in larger classes than for those in smaller classes. Later Church[18/] (1971) found that 8-year-old children in classes over 40 had an average reading age of one year more than children in classes below 30. Similarly the British researchers Little, Mabey and Russell[19/] (1971) concluded that pupils in larger classes did slightly better on reading tests than pupils in smaller classes. Flinker[20/] (1972) matched a 7th grade class of 55 students with two smaller classes of 34 each, and administered to them the Metro achievement tests in reading and mathematics before and after the experiment. He found that the mean improvement of the large group was statistically significant, while that of the small groups non-significant. However, because the teacher of the large group was the department chairman assisted by an educational worker, the qualified conclusion was that "apparently a large seventh grade class having an excellent teacher tends to show better results than an average-size class with an average teacher in English and Mathematics." Farrell and Schiefelbein[21/] (1974) conducted an extensive study of the educational system in Chile with a component about the effect of class size. The criterion used was the students' scores on the national test for the eighth grade, and the class size considered was the average size of an 8th grade class in a given school. Results indicated

that children in larger classes tended to do better than those in smaller classes. Then the effect of the socioeconomic status of students on these results was tested by dividing the sample along the dimensions of class size, community size and level of parental education. The relationship between class size and achievement was random in most cases, except that it was strongly positive in the case of children whose parents had only basic education or less. It was further concluded that

a) "The original notion that class size was important only for lower-class children in small communities is clearly not supported by data".

b) Class size was not an "accidental proxy for school quality", because it correlated positively with test scores "among those with the least effective choice of schools", and negatively "among those with more educated fathers, who have a much greater choice of schools for their children".

c) "Class size is not strongly correlated with individual measures of school or teacher quality."

d) Positive correlation between class size and achievement cannot be attributed to any pre-sorting according to ability because such a practice is rare in Chile.

9. A third category of studies indicated that class size had no significant effect on pupil achievement. Marklund[22/] concluded in his survey in 1962 that class size was not an important factor in student achievement. Johnson and Scriver[23/] (1967), using the Iowa Basic Skills Tests for English and mathematics with seventh and eighth grade pupils, found that there was no significant difference in gain between small classes (less than 25) and large classes (more than 33). Bieker[24/] (1970) also reported no significant

difference in student achievement of eleventh grade students in rural Kentucky as a function of class size.

10. The extensive studies conducted by the International Association for the Evaluation of Educational Achievement failed to show any uniformity in the relationship between class size and student achievement. The study of achievement in mathematics in twelve countries[25/] (1967) indicated, in most cases, no significant effect of class size or achievement. In the few exceptions class size had a positive effect on achievement. Results of the study of achievement in science in nineteen countries[26/] showed a positive regression coefficient between class size and achievement in four countries and a negative coefficient in six countries at the primary level. Results "suggest that the effects of class size are in general small though not insignificant --- but are somewhat uncertain in direction from one country to the next". In the international study of achievement in literature in ten countries[27/] (1973) "class size results tend to argue that students in larger classes do better than in smaller classes." In the third evaluation study on reading comprehension in 15 countries,[28/] the variables that could effect achievement were partialled out and the hypothesis long maintained by teachers "that one of the necessary conditions for individualization of instruction is small classes" was tested. There was "no evidence that it is advantageous, as far as reading comprehension score is concerned, for the child to be in a school of small classes".

Effect on Educational Environment

11. Many educators are not surprised by the inconclusiveness of research on the effect of class size on achievement, because they claim (para 4) that the significant effect is in the noncognitive domain of the teaching/learning

process and the education/social classroom environment. A number of researchers tried to determine the nature and extent of such an effort as measured by a variety of observational and quality indicators.

12. A number of studies concentrated on the teaching/learning process. In 1963 an NEA[29/] survey concluded that teachers could not cope with individual differences in large classes of 35-40 students. Pugh[30/] (1965) measured the relationship between class size and sixteen instructional and learning activities. On the basis of 180 classroom visitations he concluded that (a) mass instruction was higher in large classes (over 30) than in small classes (under 20), and (b) the execution of learning activities such as outlining, generalizing and creating, was significantly more in smaller classes than in larger ones. Along the same lines Applegate[31/] (1969) in a student survey found that students would participate in a discussion in groups of 15 or less, more than in groups of 25-30 students.

13. One of the most comprehensive studies in this field was conducted by Vincent[32/] (1968). The Indicators of Quality measure was applied in 47 school districts of the Metropolitan school study council and in 4,283 classrooms equally divided between grades 4-6 and 10-12. The measure includes criteria such as individualization of instruction, interpersonal regard, creativity and group activity. Each class is given a net score by subtracting the total negative signs seen from the total positive ones. The mean difference score for each interval shown in the accompanying table is the mean of the net scores of the classes falling within that interval. For example, elementary classes with size between 16 and 20 students are 376 and the mean of their net scores on the Indicators is 8.72. Results indicate a relationship between class size and score. The main finding, however, is the presence of a breakpoint between intervals 11-15 and 16-20

at both primary and secondary levels and one between intervals 21-25 and 26-30 at the primary level only. Differences at these points are statistically significant at the 0.01 level.

MEAN DIFFERENCE SCORE, ELEMENTARY AND SECONDARY GRADES, BY CLASS SIZE INTERVALS 32/

Number of Students in Class	Elementary (Grades 3, 4, 5, 6) Total N 2106		Secondary (Grades 10, 11, 12) Total N 2181	
	N	Mean Difference Score	N	Mean Difference Score
1-5	14	10.00	16	6.23
6-10	34	10.09	162	8.90
11-15	71	10.04	351	7.66
16-20	376	8.72	566	4.51
21-25	999	8.18	553	4.55
26-30	494	6.89	320	4.51
31-35	69	6.60	74	3.99
36-40	10	9.10	37	5.65
41-50	15	4.70	32	6.13
Over 50	14	2.07	64	4.91

Vincent suggests a definition of class size on the basis of these breakpoints. In the secondary school "large" would be "16 students or more" and "small" would be "less than 16". At the elementary level "very small" is "less than 16", "medium small" is "16-25" and "large" is "more than 25". When these definitions are employed, smaller classes are significantly better than larger classes.

14. The effect of class size on the teaching activity was found by some researchers to be controlled, as expected, by the teacher's volition. Danowski[33] (1965) found that not more than half of the teachers of small classes (20 or less) used individualized teaching methods, while Haberman and Larson[34] (1968), in trying to answer the question "Would cutting class size change instruction?" reported no significant difference in methodology between teachers of small or large classes.

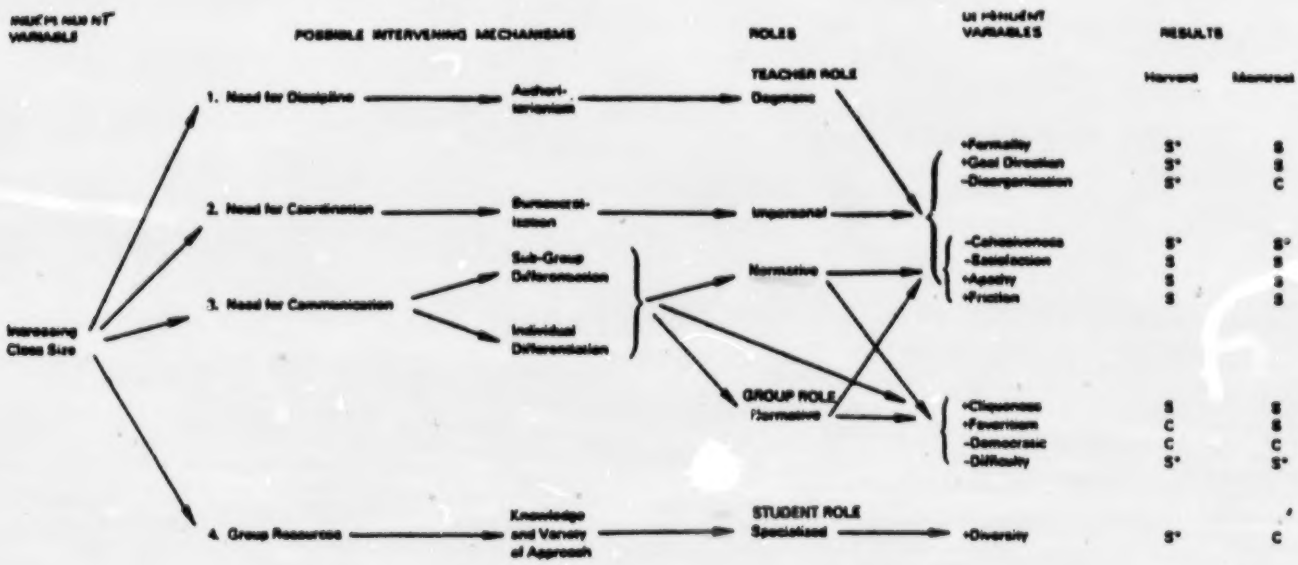
15. The relationship between class size and the social classroom environment was also investigated in a number of studies. A review of 31 studies of group size and social behavior by Thomas and Fink[35] (1963) revealed that a positive correlation existed between class size and quality of performance and group activity. Similar results were reported by Hubbard[36] (1963) on the increased and varied student relationship in larger classes.

16. A systematic study of the effect of class size on fourteen dimensions of the social climate of learning was conducted by Walberg[37] (1969) and replicated by Anderson and Walberg[38] (1972). A Learning Environment Inventory with 14 scales was administered to 149 classes participating in the 1967 evaluation of the Harvard Project Physics course and 61 classes in the Montreal Metropolitan area representing different subjects. The results, as described by the researchers in Figure 1, "suggest that eight of the hypotheses supported by the data for physics classes were again supported (in the replication study) though only two of those replications reached the 0.05 level of statistical significance", namely, that smaller classes are more cohesive and difficult. The former can be interpreted by the patterns in Figure 1 to mean that when class size is increased, the

teacher strives for more discipline, becomes more authoritative, and thus plays a dogmatic role. At the same time, increasing the class size creates a greater need for coordination, leading to bureaucratization and adoption of an impersonal role by the teacher. These two intervening mechanisms result in, among other things, less cohesiveness among pupils. The association of difficulty with smaller classes may mean that students in smaller classes "are under constant scrutiny by the teacher and are also influenced by the work of their peers which is much more visible in a small class than in a large one".

FIGURE 1

PARADIGMS FOR RESEARCH ON CLASS SIZE AND THE SOCIAL CLIMATE OF LEARNING[38/]



S* signifies that the relationship is supported empirically in the hypothesized positive or negative direction of the hypothesis; the asterisk indicates significance levels less than .05 C indicates results contradicting the hypothesis.

Conclusions and Implications

17. It is rather disappointing for policy and decision makers in education that the considerable amount of research cited above, does not warrant any definitive conclusion regarding the relationship between class size and different variables in the educational processes. The non-uniformity and inconclusiveness of results may be attributed to the following factors:

a) There is a lack of a "quantified" definition of "small" and "large" classes. It is also assumed that class size is a continuous measure, whereas it could be discrete with established breakpoints in the continuum, as suggested by Vincent's study. In that case variations within a distinct interval are not expected to have any significant effects.

b) A wide variety of measures are used for the same variable which makes the comparison of results of different studies in those cases meaningless.

c) Variables, such as methodology of instruction, that may have an interaction effect are often "suppressed" in the research designs.

18. It cannot be concluded that an increase in class size will necessarily lead to a decrease in the level of academic achievement of pupils.

19. Likewise, a decrease in class size does not guarantee an improvement in the social environment of learning. Even in cases where studies have shown that a decrease in class size may lead to more individualized teaching, higher student-teacher interaction and multiplicity of methods of instruction, these effects are controlled by the volition and attitudes

of teachers. In other words, "small classes in themselves do not guarantee more individualized programs",[39] or as Shapson points out, "not all teachers automatically take advantage of the opportunity for individualization of instruction that small classes afford."[40]

20. It seems that more important than class size is what the teacher does with the opportunities the size of the class offers for learning. The scope of effective ways of teaching in large classes, such as use of instructional materials, conceptual teaching, classroom interaction, motivation and reinforcement, etc., has not been exhausted. It would, therefore, be ironic to considerably increase the cost of education by decreasing class size so that teachers will lecture and dictate to smaller groups of students.

21. Large classes, well managed, lend themselves to a variety of teaching strategies. Individualized learning can be achieved by the "contract method" in which each student (or group of students) is required to finish a set of materials within each week at his own pace and with guidance from the teacher proportionate to his needs. Peer teaching can also turn the large class into a network of productive social interaction. The combination of a teacher and an assistant allows flexibility and simultaneous activities in extra large classes. Training of teachers for such strategies is not more difficult (if not simpler) than the training of teachers for strategies of teaching in small classes. There remain, however, para-academic boundary conditions for the extension of class size, such as management, discipline and coordination, which are also significant determinants of the size of any other educational "community" (grade, department, school, ---).

22. One last, but definitive, effect of class size is cost. Expenditures increase dramatically with a decrease in class size due to additional classroom teachers, classroom equipment and materials, and administrative services. Since we cannot say at this point whether the additional cost results in additional educational benefits, it may be more cost-effective to increase modestly, class size, and invest the annual savings in areas that prove to be effective such as textbooks and qualified and motivated teachers. Farrell and Schiefelbein[21/] calculated that a 15 percent increase in the average class size in Chile would produce an annual saving equivalent to 5 percent of the 1970 annual budget, which together with savings from other measures can finance the components of a major educational reform.

23. Since on the basis of available data no optimum class size can be scientifically established as a function of educational benefits, decisions regarding class size are bound by a fiscal policy one one hand and a curriculum policy on the other. The former deals with the question of the cost-effectiveness of investment in smaller class size versus other components of the educational system. The curriculum policy centers around the question, "What are the objectives or strategies of a curriculum that would still require a reduction in class size after the possibilities of a large class situation are exhausted?"

REFERENCES

1. New York State Teachers' Association. The School Day, the School Year and Work Load of Teachers, A Study of the Educational Implications. Albany: 1959.

2. Hubbard, Frank. "Millions of Children." NEA Journal, 52,3 (1963), pp. 53-54.

3. National Education Association." The American Public School Teacher." NEA Research Bulletin, 41,76 (1963).

4. National Education Association." Class Size Attitude and Action." NEA Research Bulletin, 47 (1969), pp.115-6.

5. "Teachers Speak Out on Their Problems." Report on Education Research, October 11, 1972, p.11.

6. Sproule, Anna. "New Front Opened in Oversize Class War." Times Education Supplement, 2925 (June 11,1971), p.3.

7. "Tougher Line Sought on Oversize Classes." Times Education Supplement, 2938 (September 10, 1971), p.7.

8. "Does Class Size Make a Difference?" Phi Delta Kappan, September 1973, p.41.

9. McKenna, Bernard H. "Class Size Revisited." Today's Education, 64 (March-April 1975), pp.29-31.

10. Milstead, John. "Communication and Identity as Structural Principles in Small Classes." Liberal Education, 59 (December 1973), pp.498-506

11. Lawson, Margaret. "Are Small Classes Best?" Times Education Supplement, 3029 (June 15, 1973) p.29.

12. Anderson, Gary J. and Walberg, Herbert J. "Class Size and the Social Environment of Learning: A Replication." The Alberta Journal of Educational Research, 18,4 (1972), p.280.

13. Furno, Orlando F., and Collins, George J. Class Size and Pupil Learning. Baltimore: City Public Schools, 1967.

14. Woodson, Marshall S. "Effect of Class Size as Measured by an Achievement Test Criterion." IAR Research Bulletin, 8,2 (February 1968). pp.1-6.

15. Balow, Irving H. "A Longitudinal Evaluation of Reading Achievement in Small Classes." Elementary English, 46 (February 1969), pp.184-187.

REFERENCES

16. Ward, William H. "A Test of the Association of Class Size to Students' Attitudes Toward Science." Journal of Research in Science Teaching, 13 (March 1976), pp.137-143.

17. Madden, Joseph V. "An Experimental Study of Student Achievement in General Mathematics in Relation to Class Size." School Science and Mathematics, 68 (October 1968), pp.619-622.

18. Church, Michael. "Children in Large Classes Learn to Read Faster." Times Education Supplement, 2932 (July 30, 1971), p.5.

19. Little, A., Mabey, C., and Russell, J. "Do Small Classes Help a Pupil?" New Society, 18, 473 (October 1971), pp.769-771.

20. Flinker, Irving. "Optimum Class Size: What Is the Magic Number?" Clearing House, 48, 8(April 1972), pp.471-3.

21. Farrell, J.P., and Schiefelbein, E." Expanding the Scope of Educational Planning: The Experience of Chile." Interchange, 5,2(1974), pp.18-30.

22. Marklund, S. Skolklassens Storlok Och Struktur (Size and Homogeneity of Class as Related to Scholastic Achievement). Stockholm: Almqvist and Wiksell, 1962.

23. Johnson, M., and Scriven, Eldon." Class Size and Achievement Gains in Seventh and Eighth Grade English and Math." School Review, 75(Autumn 1967), pp.300-310.

24. Bieker, Richard Francis. "Social and Economic Determinants of the Educational Achievement of Selected 11th Grade Students in Rural Kentucky: An Exploratory Study." Unpublished doctoral dissertation, University of Kentucky, 1970.

25. Husén, J. (Ed.). International Study of Achievement in Mathematics: A Comparison of Twelve Countries. Stockholm: Almqvist and Wiksell, 1967.

26. Comber, L.C., and Keeves, John P. Science Education in Nineteen Countries. International Studies in Evaluation I. Stockholm: Almqvist and Wiksell, 1973, p.252.

27. Purves, Alan. Literature Education in Ten Countries. International Studies in Education II. Stockholm: Almqvist and Wiksell, 1973, p.168

28. Thorndike, Robert. Reading Comprehension Education in Fifteen Countries. International Studies in Evaluation III. Stockholm: Almqvist and Wiksell, 1973, pp.108-109.

29. National Education Association. "The American Public School Teacher." NEA Research Bulletin, 41,76 (1963).

30. Pugh, James B., Jr. The Performance of Teachers and Pupils in Small Classes. Metropolitan School Study Council Commission on the School of 1980, Commission Study No. 1. New York: Institute of Administrative Research, Teachers College, Columbia University, 1965.

REFERENCES

31. Applegate, Jimmie R. "Why Don't Pupils Talk in Class Discussions." Clearing House, 44 (October 1969), pp.78-81.

32. Vincent, William S. "Further Clarification of the Class Size Question." IAR-Research Bulletin, 9,1 (November 1968), pp.1-3.

33. Danowski, C.E., "Individualization of Instruction: A Functional Definition IAR Research Bulletin, 5,2,(1965), pp.1-8.

34. Habermar, Martin, and Larson, Richard G., "Would Cutting Class Size Change Instruction?" National Elementary Principal, 40 (February 1968), pp.18-19.

35. Thomas, Edwin J. and Fink, Clinton, F. "Effects of Group Size." Psychological Bulletin, 60 (1963), pp.371-384.

36. Hubbard, Frank, Op cit.

37. Walberg, H.J. "Class Size and the Social Environment of Learning." Human Relations, 22 (1969), pp.465-475.

38. Anderson, Gary J. and Walberg, Herbert J. Op cit, pp.277-286.

39. Mitchel, Bruce M. "Small Class Size: A Panacea for Educational Ills?" Peabody Journal of Education, 47,1 (July 1969), pp.32-35.

40. Shapson, Stanley M. Optimum Class Size? A Review of Literature. Toronto, Ontario: Research Department, Board of Education, 1972.

RECENT PAPERS IN THIS SERIES:

No.	TITLE OF PAPER	AUTHOR
250	Alternative Development Strategies of Korea (1976-1990) in an Input-Output Dynamic Simulation Model.	S. Gupta
251	A Perspective on the Foodgrain Situation in the Poorest Countries	S. Burki, T. Goering
252	City Size and National Spatial Strategies in Developing Countries	W. Richardson (consultant)
253	Economic & Social Evaluation of Projects: A Case Study of Ivory Coast	J.F. Linn
254	Valorization Charges as a Method for Financing Urban Public Works: The Example of Bogota, Colombia	W. Doebele (consultant) O. Grimes
255	The Employment Impact of Industrial Investment: A Preliminary Report	J. Stern (consultant)
256	A "Stages" Approach to Comparative Advantage	B. Balassa
257	Measuring the Performance of Family Planning Programs	P.S. Mohapatra
258	Multi-Level Programming & Development Policy	W. Candler, R. Norton
259	Alternative Concepts of Marginal Cost for Public Utility Pricing: Problems of Application in the Water Supply Sector	J. Saunders, J. Warford P. Mann (consultant)
260	Meeting Basic Needs in Malaysia: A Summary of Findings	J. Meerman
261	A Model for Estimating the Effects of Credit Pricing on Farm Level Employment and Income Distribution	T. Husain, R. Inman
262	Commodity Price Stabilization and the Developing Countries: The Problem Choice	E. Brook, E. Grilli J. Waelbroeck
263	Industrial Policy and Development in Korea	L. Westphal, Kwang Suk Lim
264	The Incidence of Urban Property Taxation in Developing Countries; A theoretical and Empirical Analysis Applied to Colombia	J.F. Linn

No.	TITLE OF PAPER	AUTHOR
265	India's Population Policy: History and Future	R. Gulhati
266	Radio for Education and Development: Case Studies (Vols. I & II)	P. Spain, D. Jamison E. McAnany
267	Food Insecurity: Magnitude & Remedies	S. Reutlinger
268	Basic Education and Income Inequality in Brazil: The Long-Term View	J. Jallade
269	A Planning Study of the Fertilizer Sector in Egypt	A. Choksi, A. Meersus A. Stoutjesdijk
270	Economic Fluctuations and Speed of Urbanization: A Case Study of Korea 1955-1975	B. Renaud
271	The Nutritional and Economic Implications of Ascaris Infection in Kenya	L. Latham, M. Latham S. Basta
272	A System of Monitoring and Evaluation of of Agricultural Projects	M. Cernea, B. Tepping
273	The Measurement of Poverty Across Space: The Case of Peru	V. Thomas
274	Economic Growth, Foreign Loans and Debt Servicing Capacity of Developing Countries	G. Feder
275	Land Reform in Latin America: Bolivia, Chile Mexico, Peru and Venezuela	S. Eckstein, G. Donald D. Horton, T. Carrol (consultants)
276	A Model of Agricultural Production and Trade in Central America	R. Norton C. Cappi, L. Fletcher C. Pomareda, M. Wainer (consultants)
277	The Impact of Agricultural Price Policies on Demand and Supply, Incomes, and Imports; an Experimental Model for South Asia	M. Osterrieth, E. Verrydt J. Waelbroeck (consultants)
278	Labor Market Segmentation and the Determination of Earnings: A Case Study	D. Mazumdar M. Ahmed
279	India: Occasional Papers	M.S. Ahluwalia, J. Wall S. Reutlinger, M. Wolf R. Cassen (consultant)